



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,759	12/28/2001	June-Ho Park	3430-0174P	4285
2292	7590	11/03/2003		EXAMINER
BIRCH STEWART KOLASCH & BIRCH				LANDAU, MATTHEW C
PO BOX 747				
FALLS CHURCH, VA 22040-0747			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/028,759	PARK ET AL. <i>AM</i>	
	Examiner	Art Unit	
	Matthew Landau	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 07 August 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 21-43 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 11-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 December 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

This application contains claims 1-10 and 21-43 drawn to an invention nonelected with traverse in Paper No. 4. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Chung et al. (US PGPub 2001/0022634, hereinafter Chung).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

In regards to claims 11, 14, and 15, Figures 4 and 5D of Chung disclose an array substrate for a transreflective liquid crystal display device, the substrate 1 comprising; a gate line 50 and a data line 60 defining a pixel region by crossing each other; a switching element at a

crossing portion of the gate line and the data line; a first passivation layer 84 covering the switching element and the data line, the first passivation layer being formed of an inorganic insulating material (silicon nitride); a reflective electrode 68 on the first passivation layer, the reflective electrode being connected to the switching element and including a transmission hole 72; a second passivation layer 86 on the reflective electrode, the second passivation layer being formed of organic insulating material (BCB) and patterned to expose a part of the switching element; and a transparent pixel electrode 70 on the second passivation layer, the pixel electrode being formed in the pixel region and contacting the exposed part of the switching element.

In regards to claim 13, Figure 5D of Chung discloses the switching element is a thin film transistor including a gate electrode 52, a source electrode 62, a drain electrode 64, and an active layer 82.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Murade.

In regards to claim 11 and 14, Figures 4 and 5 of the instant application disclose an array substrate for a transreflective liquid crystal display device, the substrate comprising: a gate line 25 and a data line 27 defining a pixel region by crossing each other; a switching element T at

a crossing portion of the gate line and the data line; a first passivation layer 43 covering the switching element and the data line; a reflective electrode 19a on the first passivation layer, the reflective electrode being connected to the switching element and including a transmission hole; a second passivation layer 47 on the reflective electrode, the second passivation layer patterned to expose a part of the switching element; and a transparent pixel electrode 19b on and directly contacting the second passivation layer, the pixel electrode being formed in the pixel region and contacting the exposed part of the switching element. The difference between the admitted prior art and the claimed invention is the first passivation layer being formed of an inorganic insulating material and the second passivation layer being formed of an organic insulating material. Figure 2 of Murade discloses a first insulation layer 13 covering a switching element, a reflective electrode 3 formed on the first passivation film, and a second insulation layer 15 formed on the electrode, wherein the first layer is made of silicon nitride (paragraph [0139]) and the second layer is made of an organic material (paragraph [0140]). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using silicon nitride in the first passivation layer and an organic material in the second passivation layer. The ordinary artisan would have been motivated to modify the admitted prior art in the manner described above for the purpose of selecting a material for the first layer that has good lattice matching with the substrate and using a material for the second layer that can be easily smoothed.

In regards to claim 12, the admitted prior art discloses the reflective electrode 19a is formed of a conductive metal material including aluminum (page 3, para. [0070] of the instant application).

In regards to claim 13, the admitted prior art discloses the switching element is a thin film transistor including a gate electrode 32, a source electrode 33, a drain electrode 35, and an active layer 34 (page 3, para. [0007]).

In regards to claims 16 and 19, Figures 4 and 5 of the instant application disclose a manufacturing method of an array substrate for a transreflective liquid crystal display device, the method comprising the steps of: forming a gate line 25 and a data line 27 defining a pixel region by crossing each other; forming a switching element T at a crossing portion of the gate line and the data line; forming a first passivation layer 43 covering the switching element and the data line; forming a reflective electrode 19a on the first passivation layer, the reflective electrode being connected to the switching element and including a transmission hole; forming a second passivation layer 47 on the reflective electrode, the second passivation layer patterned to expose a part of the switching element; and forming a transparent pixel electrode 19b on the second passivation layer, the pixel electrode being formed in the pixel region and contacting the exposed part of the switching element. The difference between the admitted prior art and the claimed invention is the first passivation layer being formed of an inorganic insulating material and the second passivation layer being formed of an organic insulating material. Figure 2 of Murade discloses a first insulation layer 13 covering a switching element, an electrode 3 formed on the first passivation film, and a second insulation layer 15 formed on the electrode, wherein the first layer is made of silicon nitride (paragraph [0139]) and the second layer is made of an organic material (paragraph [0140]). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using silicon nitride in the first passivation layer and an organic material in the second

passivation layer. The ordinary artisan would have been motivated to modify the admitted prior art in the manner described above for the purpose of selecting a material for the first layer that has good lattice matching with the substrate and using a material for the second layer that can be easily smoothed.

In regards to claim 17, the admitted prior art discloses the reflective electrode 19a is formed of a conductive metal material including aluminum (paragraph [0007], page 3 of the instant application).

In regards to claim 18, the admitted prior art discloses the switching element is a thin film transistor including a gate electrode 32, a source electrode 33, a drain electrode 35, and an active layer 34 (paragraph [0007] of the instant application).

Claims 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Murade as applied to claim 16 above, and further in view of Gu.

In regards to claims 15 and 20, a further difference between the admitted prior art and the claimed invention is the organic insulating material is BCB or an acrylic resin. Figure 2 of Gu discloses an organic insulating layer 29 made of BCB (column 4, lines 15-25). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using a BCB as the organic material. The ordinary artisan would have been motivated to modify the admitted prior art in the manner described above for the purpose of selecting a well-known, photo-imageable material.

Response to Arguments

Applicant's arguments filed August 7, 2003 have been fully considered but they are not persuasive.

In response to Applicant's argument that "no admission had been made by Applicant that FIGs. 1-7E qualify as statutory prior art...", the subject matter shown in Figures 1-7E is discussed in the background section, and those figures are labeled "Conventional Art", which carries the same meaning as "Prior Art". Therefore, it is considered that the aforementioned subject matter is an admission of prior art.

In response to Applicant's argument that Murade fails to disclose the limitation "forming a reflective electrode on the first passivation layer", Murade is not relied upon for the teaching of a reflective electrode on the first passivation layer. This feature is taught by the admitted prior art. Murade is relied upon for the teaching of an organic passivation layer over an inorganic passivation layer. However, the electrode 3 shown in Figure 2 of Murade is made of an aluminum film (paragraph [0118]). Therefore, the electrode 3 inherently reflects at least some light and can be considered a reflective electrode.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (703) 305-4396.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



GEORGE ECKERT
PRIMARY EXAMINER

Matthew C. Landau

Examiner

October 30, 2003